

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently Amended) A method for breaking a futile collection cycle in a train
2 algorithm, wherein a collection-set includes at least the oldest car in the oldest
3 train, the method comprising the steps of:
4 determining when a futile cycle has been entered and determining a
5 current collection-set used in that futile collection cycle,
6 identifying a car outside the current collection-set in the oldest train, where
7 the identified car contains an object referenced from outside the oldest train,
8 adding the identified car to the ~~collection~~ current collection-set to form an
9 augmented collection-set, and
10 collecting the augmented collection-set including scanning intervening
11 cars.
- 1 2. (Original) The method of claim 1 further wherein the step of identifying includes
2 the step of using information about the references to objects in cars in the oldest
3 train collected during prior collections.
- 1 3. (Original) The method of claim 1 wherein the step of identifying includes the step
2 of using information about the references to objects in cars in the oldest train
3 collected during the current collection.
- 1 4. (Original) The method of claim 1 wherein the reference from outside the oldest
2 train is a reference from a younger train.
- 1 5. (Original) The method of claim 1 wherein the reference from outside the oldest
2 train is a reference from outside the generation.

1 6. (Original) The method of claim 1 wherein the step of determining comprises the
2 steps of:

3 measuring the volume of the oldest train before a collection,
4 measuring the volume of the oldest train after a collection, wherein if no
5 volume reduction has been found, a futile collection cycle has been entered.

1 7. (Original) The method of claim 6 further comprising the steps of:
2 establishing a threshold for the number of times that a collection cycle has
3 resulted in no reduction in the volume of the collection set,
4 saving the number of times that a collection cycle has resulted in no
5 reduction in the volume of the collection set, wherein when the threshold is
6 reached a futile collection cycle has been entered.

1 8. (Original) The method of claim 7 further comprising the steps of:
2 tracking the number of times on a no progress counter that a collection
3 cycle has resulted in no reduction in the volume of the oldest train, and
4 comparing the no progress counter to the threshold.

1 9. (Currently Amended) A garbage collector using the train algorithm, wherein a
2 collection set includes at least the oldest car in the oldest train, and including
3 means for breaking a futile cycle, the collector comprising:
4 means for determining when a futile cycle has been entered and
5 determining a current collection-set used in that futile collection cycle,
6 means for identifying a car outside the current collection-set in the oldest
7 train, where the identified car contains an object referenced from outside the
8 oldest train,
9 means for adding the identified car to the ~~collection~~ current collection-set
10 to form an augmented collection set, and
11 means for collecting the augmented collection-set including scanning
12 intervening cars.

- 1 10. (Original) The garbage collector of claim 9 further wherein the means for
2 identifying includes means for using information about the references to objects
3 in cars in the oldest train collected during prior collections.
- 1 11. (Original) The garbage collector of claim 9 wherein the means for identifying
2 includes means for using information about the references to objects in cars in
3 the oldest train collected during the current collection.
- 1 12. (Original) The garbage collector of claim 9 wherein the reference from outside
2 the oldest train is a reference from a younger train.
- 1 13. (Original) The garbage collector of claim 9 wherein the reference from outside
2 the oldest train is a reference from outside the generation.
- 1 14. (Original) The collector of claim 9 wherein the means for determining comprises:
2 means for measuring the volume of the oldest train before a collection,
3 means for measuring the volume of the oldest train after a collection,
4 wherein if no volume reduction has been found, a futile collection cycle
5 has been entered.
- 1 15. (Original) The collector of claim 14 further comprising:
2 means for establishing a threshold for the number of times that a
3 collection cycle has resulted in no reduction in the volume of the collection set,
4 means for saving the number of times that a collection cycle has resulted
5 in no reduction in the volume of the collection set, wherein when the threshold is
6 reached a futile collection cycle has been entered.
- 1 16. (Original) The collector of claim 9 further comprising:
2 means for tracking the number of times on a no progress counter that a
3 collection cycle has resulted in no reduction in the volume of the oldest train, and

4 means for comparing the no progress counter to the threshold.

1 17. (Currently Amended) A computer readable storage media comprising media
2 containing instructions for execution in a processor for the practice of a method
3 for breaking a futile collection cycle in a train algorithm, wherein a collection set
4 includes at least the oldest car in the oldest train, the method comprising the
5 steps of:

6 determining when a futile cycle has been entered and determining a
7 current collection-set used in that futile collection cycle,

8 identifying a car outside the current collection-set in the oldest train, where
9 the identified car contains an object referenced from outside the oldest train,

10 adding a found younger car to the ~~collection~~ current collection-set to form
11 an augmented collection set, and

12 collecting the augmented collection set.

1 18. (Original) The computer readable storage media of claim 17 further comprising
2 media containing further instructions for the practice of a method comprising the
3 step of identifying includes the step of using information about the references to
4 objects in cars in the oldest train collected during prior collections.

1 19. (Original) The computer readable storage media of claim 17 further comprising
2 media containing further instructions for the practice of a method comprising the
3 step of identifying includes the step of using information about the references to
4 objects in cars in the oldest train collected during the current collection.

1 20. (Original) The computer readable storage media of claim 17 wherein the
2 reference from outside the oldest train is a reference from a younger train.

1 21. (Original) The computer readable storage media of claim 17 wherein the
2 reference from outside the oldest train is a reference from outside the generation.

1 22. (Original) The computer readable storage media of claim 18 further comprising
2 media containing further instructions for the practice of a method comprising
3 steps of:

4 measuring the volume of the oldest train before a collection,
5 measuring the volume of the oldest train after a collection, wherein if no
6 volume reduction has been found, a futile collection cycle has been entered.

1 23. (Original) The computer readable storage media of claim 22 further comprising
2 media containing further instructions for the practice of a method comprising
3 steps of:

4 establishing a threshold for the number of times that a collection cycle has
5 resulted in no reduction in the volume of the collection set,
6 saving the number of times that a collection cycle has resulted in no
7 reduction in the volume of the collection set, wherein when the threshold is
8 reached a futile collection cycle has been entered.

1 24. (Original) The computer readable storage media of claim 23 further comprising
2 media containing further instructions for the practice of a method comprising
3 steps of:

4 tracking the number of times on a no progress counter that a collection
5 cycle has resulted in no reduction in the volume of the oldest train, and
6 comparing the no progress counter to the threshold.

25.-33. (Canceled)